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SCIENCE

FRIDAY, JANUARY 28, 1916

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MSS. intended for publication and books, etc., intended for review should be sent to Professor J. McKeen Cattell, Garrison-on-Hudson, N. Y.

THE ISTHMUS OF PANAMA IN ITS RELATION TO THE ANIMAL LIFE OF NORTH AND SOUTH AMERICA[1]

IT is a commonplace of geological teaching that the past can be understood only through a knowledge of the present and it is equally true that the present can be fully comprehended only through a knowledge of the past. Each must be employed to elucidate the other and we must pass from one to the other, as new discoveries are made in either realm.

The problems which deal with the existing geographical distribution of animals have received much light from the progress of paleontological discovery and the present arrangement is clearly seen to be the necessary outcome of an illimitable series of past changes, climatic, geographical and biological. Even in pre-Darwinian days the geographical distribution of animals had been given much attention, as a collection of interesting facts, though, under the belief in special creation then prevailing, no explanation of those facts was possible. The general adoption of Darwin's views immediately placed the subject in a new light, for it was at once seen that, unless the theory of evolution could offer a rational and satisfactory solution of these problems of distribution, the foundations of the theory would be greatly weakened.

No result of paleontological studies has, of late years, been more striking than the clear recognition of the fact that migra-

[1] Lecture before the American Association for the Advancement of Science at its San Francisco meeting, August, 1915.

Jeanroy; French Literature of the Middle Ages, by Alfred Jeanroy; Modern French Literature, by Gustave Lanson; Italian, by Henri Hauvette; Spanish, by Ernest Martinenche; English, by Émile Legouis; German, by Charles Andler; Juridical and Political Science, by F. Larnaude; Economics, by Charles Gide.

Each chapter is followed by a well-chosen bibliography of the great French works within its field, and the work is embellished by portrait illustrations, Pasteur having been selected for the frontispiece of Volume I., and Renan for Volume II. The press work, while without any luxurious quality, is dignified and in the best French taste.

Wm. H. Hobbs

University of Michigan

SCIENTIFIC JOURNALS AND ARTICLES

The December number (Vol. 22, No. 3) of *The Bulletin of the American Mathematical Society* contains: "Concerning absolutely continuous functions," by M. B. Porter; "On the representation of numbers in the form $x^3+y^3+z^3-3xyz$," by R. D. Carmichael; "On the linear continuum," by R. L. Moore; "A problem in the kinematics of a rigid body," by Peter Field; "Jules Henri Poincaré" (review of Enquête de "l'Enseignement Mathématique" sur la Méthode de Travail des Mathématiciens, second edition, and Lebon's Notice sur Henri Poincaré and Savants du Jour: Henri Poincaré, second edition), by R. C. Archibald; "Shorter Notices"; Breslich's First-Year Mathematics for Secondary Schools, by D. E. Smith; Braude's Coordonnées intrinsèques, by R. C. Archibald; Châtelet's Leçons sur la Théorie des Nombres, by E. B. Skinner; Salmon's Treatise on the Analytic Geometry of Three Dimensions, fifth edition, volume 2, by Virgil Snyder; Hermann Grassmann's gesammelte mathematische und physikalische Werke, Band 3, by E. B. Wilson; "Notes;" and "New Publications."

The January number (Vol. 22, No. 4) of the *Bulletin* contains: Report of the October meeting of the society, by F. N. Cole; Report of the twenty-seventh regular meeting of the San Francisco Section, by Thomas Buck; "Transformation theorems in the theory of the linear vector function," by V. C. Poor; Review of Hobson's John Napier and the Invention of Logarithms, 1614, and Gibson's Napier and the Invention of Logarithms, by R. C. Archibald; Review of Moritz's Memorabilia Mathematica, by R. C. Archibald; "Shorter Notices"; Hill's Development of Arabic Numerals in Europe, by D. E. Smith; Caunt's Introduction to the Infinitesimal Calculus, by T. E. Mason; Lenz's Die Rechenmaschinen und das Maschinenrechnen and Furtwängler and Ruhm's Mathematische Ausbildung der deutschen Landmesser, by E. W. Ponzer; Dickson's Algebraic Invariants, Borel's Leçons sur la Théorie des Fonctions, second edition, Bateman's Mathematical Analysis of Electrical and Optical Wave-Motion on the Basis of Maxwell's Equations, and Rutherford's Radioactive Substances and their Radiations, by R. D. Carmichael; "Notes"; and "New Publications."

SPECIAL ARTICLES

THE POISONOUS EFFECTS OF THE ROSE CHAFER UPON CHICKENS

Serious losses have occurred each year during June and early July, from chickens having eaten the rose chafers (*Macrodatylus subspinosus*). These losses have often been ascribed to various causes, but close observations have shown that the chickens are very fond of eating these insects in large numbers, and post-mortem examinations have revealed the presence of many undigested insects in their crops. The crops are usually so full as to give the impression that death had been due to a "crop bound" condition of the chickens. Some have also supposed that these deaths were due to a mechanical injury of the crop by the spines on the legs of the insects having punctured the lining of this part of the digestive system, while others have accounted for the death of these chickens by the rose chafers having bitten the crops.

A number of cases, some of which resulted